

# AQUATICA™

## Digital

## AD7000



### OPERATING MANUAL FOR THE AQUATICA PRO DIGITAL HOUSING FOR THE NIKON D7000

PRODUCT # 20068

Thank you for having selected the AQUATICA Digital Camera Housing System for your underwater photography.

The AQUATICA AD7000 Digital Housing is the result of a long and continuing relationship with the most demanding underwater photographers in the world. Each housing is machined from solid aluminum on the best 5 axis computerized machine for the highest level precision, it is then hand finished, quality checked and pressure tested to a 90 meters/300 feet equivalent by a small group of specially trained individuals, each of whom takes the utmost pride and satisfaction in offering the best underwater camera housing in the world.

The Aquatica Digital Housing was designed for optimum technical and optical performance and to provide easy and efficient underwater access to essentials functions and controls of the Nikon D7000 DSLR.

This manual assumes that the user is already familiar with the Nikon D7000 camera. If not, please read the Nikon instruction manual before attempting to use the housing.

With basic care and maintenance, your AQUATICA housing will give you a lifetime of enjoyment and satisfaction in producing underwater images.

Please read this manual carefully before using your housing for the first time and note that: wherever cited the right hand is your right when using the housing.

### SAFETY PRECAUTIONS:

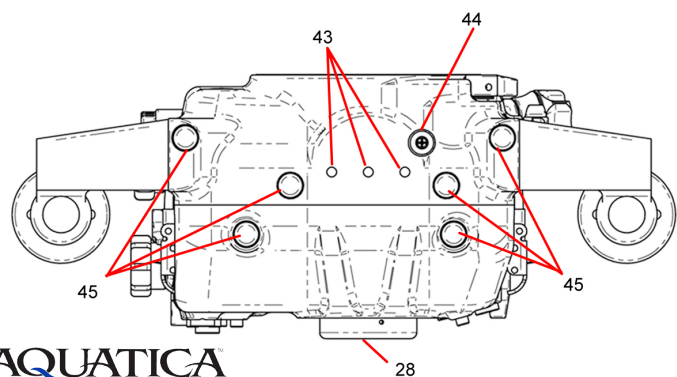
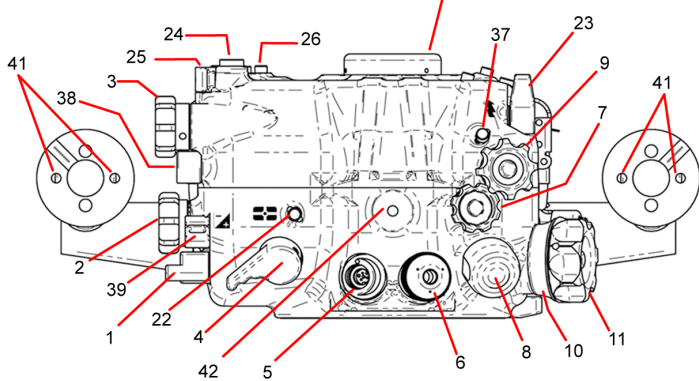
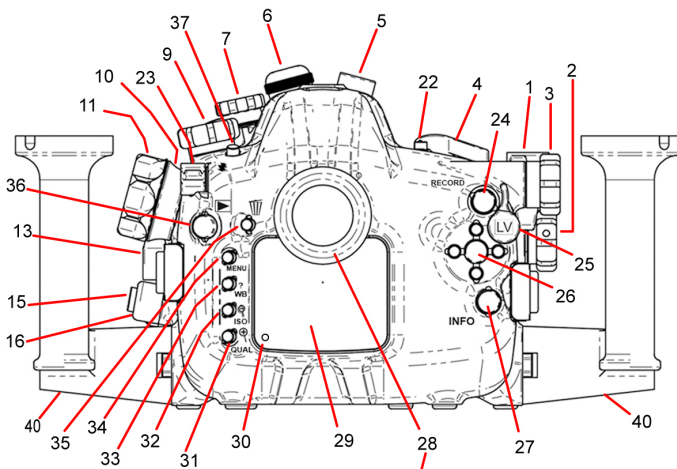
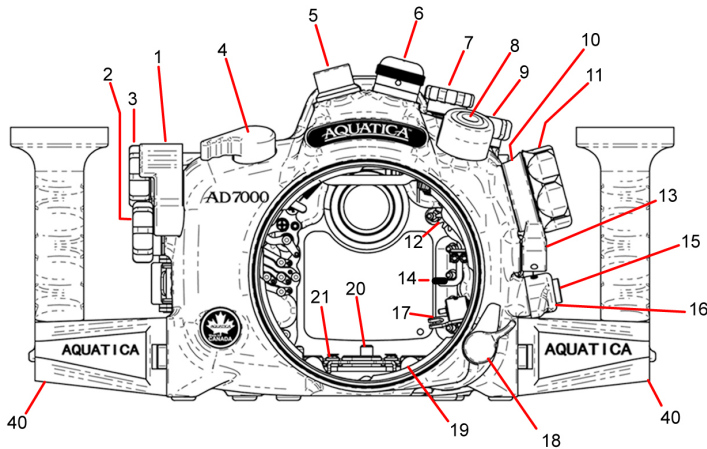
Improper transportation handling or use of this housing might cause a flood or malfunction.

Please read and follow the following precautions:

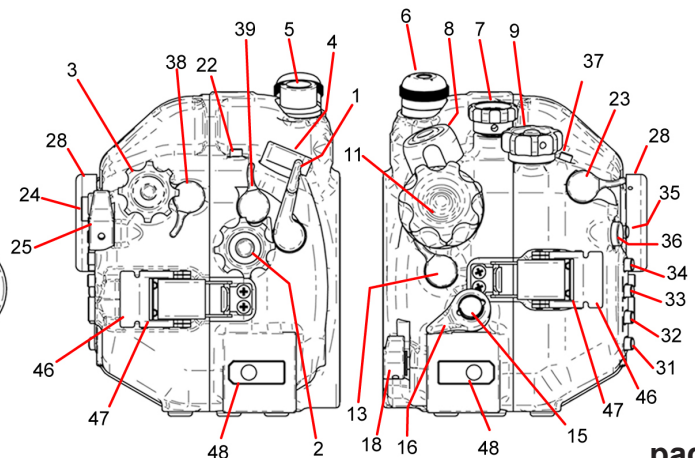
- Store and transport the housing in a sturdy, shock proof container and avoid travelling with the camera mounted inside the housing as impact forces especially on the external push buttons will be transferred to the camera.
- When travelling by air, either remove the port or open the housing, internal pressure built up can push port out of their sealing surface.
- Never change a port or open the housing in a location where sand or similar foreign material might come in contact with an O-ring.
- Use of accessories, modifications or alterations unauthorized by the manufacturer may result in flooding or poor functioning of the controls.
- Be careful when opening the housing as possible pressure buildup inside the housing could exaggerate the force of the latch spring. Keep fingers away from the path of the latches.
- Whenever changing ports or O-rings, perform a simple seal test without the camera inside.
- Take extra care to avoid scratching the acrylic, glass ports and windows, handle these as you would your camera lenses.
- Make sure that all ports remain properly attached before rinsing the housing, especially when rinsing without a strobe make sure the wired bulkheads connectors, if you are using this type of connectors are sealed with their supplied plug. (Optical type connectors are water proofed)
- Never attempt to operate the camera in autofocus mode with standard (NON AF-S type) lens which have a mounted focus gear engaged with the housing focusing gear mechanism.
- The main O-ring seal should be maintained and cleaned on a regular basis. Read and follow the Care and Maintenance section on this manual.
- Ensure that the spring loaded secondary lock is properly engaged on the latches to prevent their accidental opening.

# AQUATICA™

## Digital



- 1- Shutter Release lever
- 2- Sub-Command Dial knob
- 3- Main Command Dial knob
- 4- ON/OFF Power Switch lever
- 5- Bulkhead strobe connector (Nikonos type shown)
- 6- Bulkhead strobe connector (Optical type shown)
- 7- Release mode dial selector knob
- 8- Hydrophone
- 9- Exposure mode selector
- 10- Focus/Zoom pinion gear release disk
- 11- Focus/Zoom Control knob
- 12- Focus/Zoom Control pinion gear
- 13- Lens Release knob
- 14- Lens Release knob lever
- 15- Focus mode selector button
- 16- AF/MF selector
- 17- Focus Mode Selector fork
- 18- Port Release mechanism button
- 19- Bayonet Flange
- 20- Camera mounting screw
- 21- Quick release tray
- 22- Metering Pattern Selector button
- 23- Flash actuating & exposure compensation lever
- 24- Video record button
- 25- Live View lever
- 26- Multi selector array
- 27- INFO activation button
- 28- Removable Viewfinder
- 29- Rear LCD window
- 30- Moisture Alarm LED receptable
- 31- Qual (Image Quality/Size)/Reset button
- 32- ISO/Thumbnails/Playback Zoom button
- 33- WB (White Balance)/Protect button
- 34- Menu button
- 35- Delete button/Format button
- 36- Playback button
- 37- Release mode selector unlock button
- 38- AE/AF LOCK button
- 39- Exposure Compensation/Reset button
- 40- Grips (x2)
- 41- Grip's Accessories mounting holes (1/4"-20)
- 42- Top accessory mounting hole (1/4"-20)
- 43- Bottom accessories mounting holes (1/4"-20) (x3)
- 44- Sacrificial Anodes (x1)
- 45- Rubber Anti Skid pad
- 46- Locking Latches (one per side)
- 47- Safety locking tab (one per latches)



1. SHUTTER RELEASE LEVER: Pulling the shutter release lever back part way activates the camera meter and auto focus. Pulling the lever back all the way fires the camera.
2. SUB-COMMAND INPUT / APERTURE KNOB: Rotates clockwise and counterclockwise. Use alone or in combination with other controls to select or set various camera functions or modes. In "Manual" the exposure mode controls the aperture settings (see shooting tip #3 & #4).
3. MAIN-COMMAND INPUT KNOB: It rotates clockwise and counterclockwise. It can be used alone or in combination with other controls to select or set various camera functions or modes. Refer to camera manual for in depth use (see shooting tip #3 & #4).
4. ON/OFF POWER SWITCH LEVER: Rotate to switch camera power on or off
5. BULKHEAD STROBE CONNECTOR: To connect Flash Sync Cord. (Manual Nikonos type shown, other option available on request).
6. BULKHEAD STROBE CONNECTOR: For optical type Sync Cord. (Sea & Sea type shown, Inon type is also supplied)
7. RELEASE MODE DIAL SELECTOR KNOB: This knob rotate the release mode dial to rotate, the locking button (key # 37) must be pressed down.
8. HYDROPHONE: This optional hydrophone will allow the recording of ambient sound in video mode, it is installed in the supplied accessory hole which can be used for the remote control bulkhead connector as well)
9. EXPOSURE MODE KNOB: Rotates the mode selector to the desired exposure mode.
10. FOCUS/ZOOM PINION GEAR RELEASE DISC: A release disk is provided to disengage the knob should you want to use a non AF-S lens in autofocus or when you wish to remove the camera, with lens attached, from the housing.
11. FOCUS/ZOOM KNOB: Turning allows manual focus of a single focus lens or rotation of the zoom mechanism of a lens.
12. FOCUS/ZOOM PINION GEAR: Engages and operates the focus or zoom gear attached to the lens.
13. LENS RELEASE LEVER: activates the lens release button on the camera allowing easy removal of the lens.
14. LENS RELEASE INTERNAL KNOB LEVER: Applies pressure on the camera lens lock button
15. FOCUS MODE SELECTOR: Press to select between AF-A, AF-C and AF-S or for 3D, Auto, single or multiple point focusing. Use main command or sub command knob to choose options (see also shooting tips #5).
16. AF/MANUAL FOCUS SELECTOR: Rotates the focus AF/M selector of the camera.
17. FOCUS MODE SELECTOR FORK: Engages the focus AF/M selector of the camera.
18. PORT RELEASE MECHANISM BUTTON: Rotate down to release the locking mechanism when installing or removing a port or extension. Push to engage lock
19. BAYONNET MOUNTING FLANGE: Allows the mounting of different ports and extension rings on the housing.
20. CAMERA MOUNTING SCREW: Used to attach camera to quick release tray.
21. REMOVABLE CAMERA TRAY: Holds camera in place and slide in housing, allowing easy battery replacement.
22. METERING PATTERN SELECTOR KNOB: Push to select the metering mode by rotating the main command dial (key #3), options are: Spot, Center Weighted or Matrix metering (see also shooting tips #5).
23. FLASH ACTUATING & EXPOSURE COMPENSATION LEVER: Press to pop internal flash up (for optically triggered strobes) and to engage the flash exposure compensation or flash synchronization mode, use main or sub command knob to select options, lift for closing internal flash when using optically triggered strobes (see also shooting tips #5).
24. VIDEO RECORD BUTTON: Press down to start recording video, press again to stop, works in conjunction with Live View Lever (key #25).
25. LV BUTTON: pull to activate the Live View function of the camera (required for video mode).
26. MULTI SELECTOR / OK BUTTONS: These buttons have multiple uses. They allow the selection of the focus area, in the menu mode, they are used to scroll up or down and left to right to choose from your menu selection and they are used as well in the delete mode. To accept a selection press the center OK buttons.
27. INFO BUTTON: This button will activate the rear LCD and display all pertinent shooting information, this function can also be accessed through the ON/OFF/Illuminator knob (see shooting tip # 1)

## CONTROLS IN DETAIL, CONTINUED

28. REMOVABLE VIEWFINDER: A full view of the illuminated camera viewfinder displays all necessary information. This viewfinder can be removed and replaced with the optional Aqua View Finder (# 20054) for a larger displayed image.
29. REAR LCD WINDOW: allow viewing of menus, information and images.
30. MOISTURE ALARM WARNING DIODE: Warning LED will light up in the unlikely event of water penetrating the housing.
31. IMAGE QUALITY/SIZE & RESET BUTTON: Press to access the different image quality available on the camera; use in conjunction with main and/or sub command dial control knobs. Pressing this button and the Exposure compensation (#39) lever will reset the camera shooting parameter to its default position (see shooting tip # 5).
32. ISO CONTROL BUTTON: Press to select ISO, use in conjunction with subcommand dial control (Key #3) to select value (see shooting tip # 5).
33. WHITE BALANCE: Press to access white balance functions, use in conjunction with subcommand dial (Key #3) to select mode and/or main dial controls (Key # 2) to the select attributes of the selected mode. Or to safely lock a picture in playback mode (see shooting tip # 5).
34. MENU BUTTON: Press to activate menu display, scroll using multiple selector buttons and select using OK button.
35. DELETE BUTTON: Press to delete images, use multiple selector buttons to select and press the enter button to delete, can also be used in conjunction with the metering selector button (Key #22) in order to format the card inside the camera.
36. PLAYBACK BUTTON: Press to activate the monitor and review images. Use Multi Selector to scroll, select and magnify.
37. RELEASE MODE DIAL SELECTOR UNLOCK BUTTON: This button unlock the release mode dial so it can be rotated, with the release mode dial knob (key #7)
38. AE / AF LOCK LEVER: Lock the auto focus / auto exposure or use for activating the AF-ON button according to preference (see shooting tip # 2).
39. EXPOSURE COMPENSATION BUTTON: Press to engage the Exposure compensation control [+/-]. Rotate the Main-Command knob to set the desired exposure compensation value. The value will appear on the rear LCD panel and in the Viewfinder. This button when pressed along with QUAL (key # 31) button will reset the camera shooting parameter to its default position (see shooting tip # 5).
40. HAND GRIPS (X2): Left and right grip allowing the mounting of strobe arms and accessories.
41. GRIP'S ACCESSORIES MOUNTING HOLES: Two 1/4-20 TPI holes on each grip are ready to accept TLC Base Brackets or TLC Base Ball for strobe arms or accessories.
42. TOP MOUNTING HOLE FOR ACCESSORY: a 1/4"-20 TPI hole is supplied to accept a TLC accessory or TLC base ball for mounting a strobe arm or a modeling light.
43. BOTTOM MOUNTING HOLES: Three 1/4" X 20 holes are provided for mounting strobes trays or accessories.
44. SACRIFICIAL ANODE: A zinc anodes is installed to protect your housing against salt water corrosion; it is made to deteriorate faster than the other strategic metal part of your housing, hence the name sacrificial anodes. This anode need to be replaced by the user as needed.
45. RUBBER ANTI SKID PADS: rubber pads are provided to protect the housing and preventing it from sliding on wet decks.
46. LOCKING LATCHES: Two heavy duty latches (one per side) with safety locks to protect against accidental opening.
47. SAFETY LOCKING TAB: Push safety tab and lift latches to open.



The Aquatica Digital AD7000 housing is issued from the world's most technologically advanced underwater housing lineage, ergonomically designed to place all the essential camera controls under your finger tips and features the following:

- A. A port locking mechanism to prevent accidental rotation of the port or extension mounted on the housing
- B. A Lens Lock Release control that will activate the lens release button of camera from the outside of the housing.
- C. A quick release tray, allowing fast and easy removal of camera even with lens attached to the camera body.
- D. Large ergonomic and easy to operate controls for the manual and computerized camera functions.
- E. A flexible strobes connector circuitry that allows switching from manual to TTL easily as well as using optical triggering via optical fiber sync cords.
- F. The following controls can be easily manipulated underwater:
  - Mechanical shutter release.
  - Shutter speed through the Main-Command Dial
  - Aperture through the Sub-Command Dial
  - Focus / Zoom
  - AE-L/AF-L access
  - LCD panel illumination & information display.
  - Metering system selector
  - Exposure mode (Mode)
  - Exposure Compensation
  - Focus Area Selector
  - ISO sensitivity
  - Delete button access
  - Live view access
- G. A complete selection of bayonet mounted ports including the 4", 6", 8" and 9.25 diameter domes, two flat ports and various extension rings, everything to preserve the image quality of your Nikon Mount AF lenses. Some other brands of ports can also be used with an Aquatica port adapter.
- H. A comprehensive line of lens gears and related accessories.

### PREPARATION OF THE HOUSING

#### 1. Attach Grip Bracket to the housing:

The housing comes with two Grips for both right and left hand grips which should be installed on the sides of the housing with the supplied screws and Allen key. Occasionally remove the grips and lubricate the screws (see Care and Maintenance: of the housing.)

Depending on which strobe system you are using, you can mount the necessary shoes or brackets onto the 1/4"-20 threaded holes on the top of the hand grips. The AQUATICA TLC strobe arm system is recommended.

Additionally, there are three 1/4"-20 threaded holes on the bottom of the housing that can be used for various mounting application including tripod. And another 1/4"-20 threaded hole on the top rear half of the housing for mounting accessories.

Mount your strobe and connect the sync cord to the housing's strobe bulkhead. Be sure to read the section titled "Care and Maintenance: of the O-rings."

#### 2. Lubricate the Main O-ring Seal:

Before use, carefully inspect the Main O-ring seal from in its groove on the front half of the housing to confirm that it is free from scratches or foreign material. Lubricate the O-ring with a light coat of silicone grease.

When replacing the O-ring place the entire O-ring over the O-ring groove and start by pushing the O-ring in the corners. Work your way around the O-ring making sure the O-ring is snugly sitting in the groove.

For proper handling and maintenance of O-rings be sure to read the section titled "Care and Maintenance: of the O-rings."

## PREPARATION OF THE PORTS

### 1. Select the correct port:

Once you have decided on your type of photography for the dive, you will be installing either a flat Macro Port (product # 18426 or 18428), or a Dome Port (Product # 18405, 18407, 18409 or 18410). *Refer to the AD7000 lens chart for the suggested port and accessories for the lens used.*

**Macro Port Extension Rings:** Both the Macro Ports will accept the AF-D & AF-S Micro-Nikkor 60mm lens without extension. If you intend to use a longer lens you will require an additional extension ring. These extension rings fit between the Macro Port and the housing and provide the extra space necessary for the longer lens.

**Dome Port Extension Rings:** When using a wide angle or zoom lens, the Dome Port may require the uses of an extension ring to optimize the optical center of both the dome and the lens.

In order to reduce glare, maximize contrast and offer physical protection to the dome, the use of a dome shade is highly recommended. Refer to the AD7000 lens chart for the suggested port and accessories for the lens used.

A comprehensive list of the lenses supported and their required extensions and/or accessories is supplied at the end of this manual. For the latest updated version of this lens chart, you can refer to the AD7000 Type 4 Lens Chart at [www.aquatica.ca](http://www.aquatica.ca)

### 2. Clean the port:

Dirt, grease or fingerprints on the port especially on the inside, can adversely affect the quality of the image. Acrylic ports should be cleaned with plastic or acrylic safe cleaner and the glass ports should be cleaned with lens cleaner. For more details please read the section titled "*Care and Maintenance: of the Ports.*"

### 3. Lubricate the port O-ring seal:

Before using the port, remove the O-ring on the rear of the port and lightly coat it with silicone grease. For more details please read the section titled "*Care and Maintenance: of the O-rings.*"

## PREPARATION OF THE LENS

Depending on the lens used, there are a number of gear options possible. Using the right gear and correctly mounting it on the lens is primordial for a smooth housing operation. Follow the installation directions included with each gears carefully. Since the aperture control on the Nikon D7000® is achieved through the Sub-Command Dial, the use of AF types of lenses is mandatory.

A comprehensive list of the lenses supported and their required gears is supplied at the end of this manual. For the latest updated version of this lens chart, you can refer to the AD7000 Type 4 Lens Chart at [www.aquatica.ca](http://www.aquatica.ca)

**Notes:** If the camera is set in manual focus a focus gear must be mounted on the lens. If you are using a zoom lens with a zoom ring the camera must be on auto focus, also note that if using a dome port you may be required to install a close up diopter on the lens to correct the minimum focusing distance of the lens so that it will be able to focus on the virtual image created by the dome. Refer to the AD7000 lens chart for the suggested diopter, if one is required for your lens/port combination.

### Gear installation:

Mount the focus gear over the focus ring of the lens.

(a) For Slip-on gears (gears without mounting screws): Slide the gear over the lens and align the gear with the front of the lens focusing ring.

(b) For gears with mounting screws: Lightly tighten the three set screws evenly. Tighten each screw in small increments (approximately ¼ a turn each) working around the gear until all the screws are properly tightened and the gear is concentric with the lens body.

**CAUTION:** Do not over-tighten these screws, as this might bind the lens, thus restricting the rotation of the focus ring and/or damaging the lens. Conversely under-tightening these screws might cause the gear to slip or loose alignment.

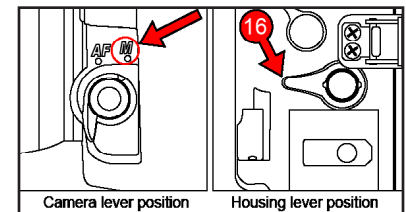
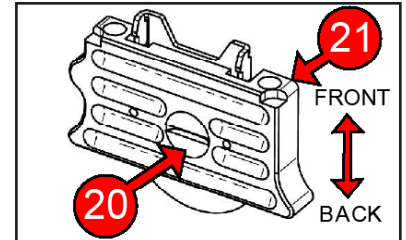
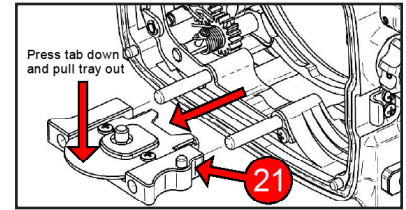
Rotate the focus ring several times to make sure it moves smoothly and the gear does not slip before closing the housing

**WARNING:** If the lens is a not of the AF-S type, never attempt to operate it with the camera in autofocus mode and with a mounted focus gear engaged. This might cause serious damage to your camera or to the lens. With standard AF lenses switch from manual to auto focus by lifting the focus knob and the under laying disc (key # 10) rotate and position it so as to disengage the focus gear mechanism, then switch the AF/M lever (key # 16) to AF position. Also avoid travelling with the zoom/focus gear attached as any impact will be directed at the sensitive zoom or focus mechanism

**Zoom lenses:** When using a zoom lens, the gear should be mounted on the zoom lens control. The Focus/zoom knob (key #11) then control the zoom gears on the lens. Focusing of lens is achieved by using the camera's autofocus system.

## CAMERA PREPARATION AND INSTALLATION

1. Important Note: prior to installing the camera in the housing, remove the rubber eye piece and the rear LCD plastic protector from the camera as well as the camera strap, Clips and/or any object that might obstruct installation, third party camera strap hookup should be removed or tucked away
2. Make sure the ON / OFF lever (key # 4) is in the ON position and that the lens lock lever (key # 13) is in the proper position
3. Remove the quick release tray (key # 21) from the housing by pressing down the metal tab and pulling the tray out. Carefully place the camera on it, making sure that:
  - a) The camera is properly aligned and secured against rotation or movement.
  - b) Align the Tripod Socket of the camera with the mounting screw (key # 20). Tighten the mounting screw securely while ensuring that the camera position is not altered.
  - c) Position the AF/M lever on the side of the camera to M and do the same on the housing (key #16) as per illustration at right.
  - d) Plug the Hydrophone cable in, and tuck the microphone plug cover in and safely out of the way.
  - e) Slide the quick release tray (key # 21) back into place, it will lock itself into place.



### CLOSING OF THE HOUSING

Once the camera is secure on the saddle inside the front half of the housing, simply:

1. If using wired connection to the strobes, slide the housing's hot shoe connector onto the hot shoe base of the camera as seen in drawing at right.
2. If using optical connectors, then do not install the hot shoe (HYB version) as this will cancel the built in flash of the camera, also make sure your built in flash on the camera is free of obstruction and can go up. Confirm its operation before immersing the housing.

#### Before closing the housing always ensures that:

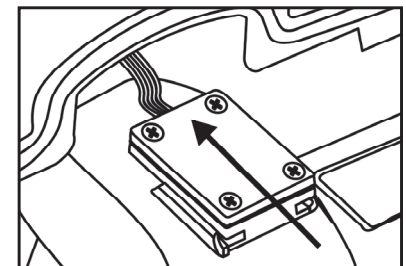
1. The main O-ring on the front half of the housing is clean, lubricated and properly seated for a positive seal.
2. The sealing surface on the rear half of the housing is clean and free from any scratches or physical damage.
3. All cords, wires and microphone rubber cover are tucked in so that they do not interfere with the closing of the housing.

#### To close the housing simply:

- i. Join the front and rear halves of the housing using the two dowel pins at the bottom of the housing as a guide.
- ii. Hold the housing with both hands and look around the sealing surface to ensure that the O-ring is properly seated and that no cords, wires, rubber cover or "D-rings" are caught between the edges.
- iii. Close the two side latches simultaneously and verify that the locking tab is engaged. To open reverse the process, push on the locking tab and lift the latches being careful of your fingers.

CAUTION: if you feel any resistance as you attempt to close the latches, do not force the closure. Check for any obstructions and try again.

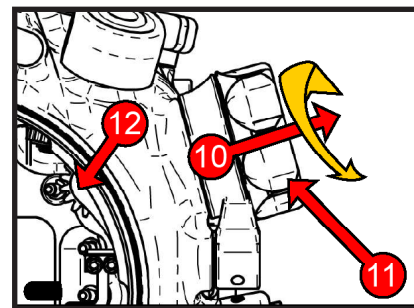
- iv. Always verify that the safety locking mechanisms of the latches are properly engaged prior to entering water to avoid any accidental opening.





With the camera inside the housing, first disengage the pinion gear (key #12) by pulling and rotating the disc (key # 10) under the focus/zoom knob into the up position, install the lens prepared with its gears (if needed) through the port opening in the front of the housing. If using a gear always confirms that it is properly installed and aligned on the lens. Once installed, release the disc (key # 10) and rotate the focus / zoom control knob (Key # 11) to ensure that the gears are properly meshed, that their rotation is smooth and that it does not do not grind or bind.

Note: To avoid damaging the auto-focus mechanism of the camera when using standard AF-D type lenses, you should always set the Focus Control to "M" Manual for testing the proper meshing of focusing gears. This procedure is not required with AF-S type lenses.



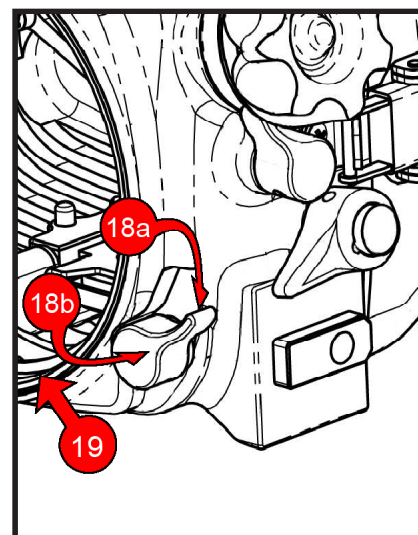
### MOUNTING THE PORT

Before mounting the port on the housing always ensure that the port O-ring is clean, lubricated and properly seated in its groove and that the sealing surface on the housing is clean and free of physical damage.

The AQUATICA AD7000 Digital Housing System features a bayonet mount (key #19) equipped with a locking mechanism (key # 18). If there is already a port or extension mounted on the housing and you wish to remove it, simply pull the lock lever (key 18a) downward until it stop, rotate the port counter clockwise and carefully pull out, and put it aside in a safe place with the port lens delicate surface protected.

To mount the port or extension ring simply:

1. Place the housing on its back on a soft steady surface.
2. Place the port or extension ring inside the main port of the housing. Align one of the four alignment notches with the opening of the housing.
3. Place your hands on opposite sides of the port or extension ring.
4. Push with even force on both sides of the port or extension ring until you feel it snap into place. Make sure the bayonet is completely inside the housing.
5. Turn the port clockwise until it stops. Do not force, if there is too much resistance takes the port off, check the O-ring and retry. Once in, engage the port lock by pushing on the lock lever in (key 18b) as you would a button.
6. Check to ensure for the proper seating and sealing of the port or extension and that it is safely locked on the housing.

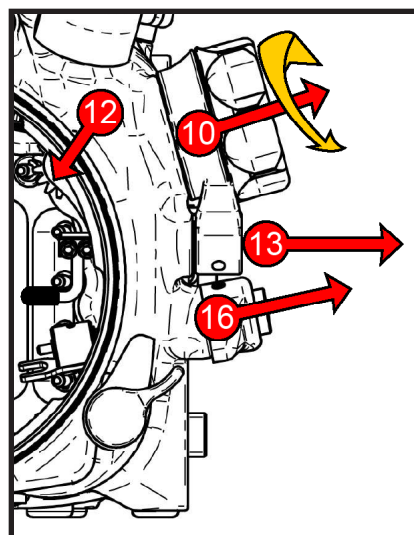


Note: It is recommended that you familiarize yourself with this mount by trying it without the camera; this will allow you to see the inside view of the bayonet mount and of the ports or extension rings in the housing.

### CHANGING A LENS (REMOVING A LENS)

By the front: Remove the port; the lens mounted gears may restrict the view and ease of access to the lens release button of camera. The AQUATICA AD7000 Digital Housing features a Lens Release Lever (key # 13) that is designed to trigger the lens release button of camera to allow easy removal of lens. To remove a lens, simply rotate Lens Release Lever (key # 13) to press the camera lens release, hold and turn the lens clockwise.

By the rear: remove the back, pull out the lens release lever (key # 13) and the M/S/C lever (key # 16) out of the way, lift and turn the disc under the focus/zoom knob (Key # 10) to disengage the pinion gear (key #12), release the saddle lock, remove hot shoe cable if using one and pull out the camera and lens assembly, replace lens and reinstall by reversing this procedure.



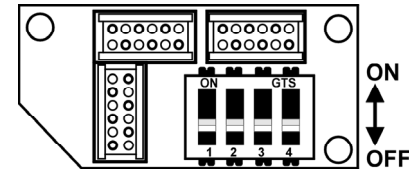
## MOUNTING AND ATTACHING FLASHES

Threaded holes are provided on top of the hand grips to accept the necessary shoes or bracket to accommodate your strobes arms. Additionally, three 1/4"-20 threaded holes on the bottom of the housing can also be used for various mounting applications and a 1/4"-20 threaded hole on top of the rear half of the housing will accept an Aquatica bracket or Base Ball that can hold a focus/video light or a extra strobe arm.

Developed with the Aquatica housing in mind, the Aquatica TLC Strobe Arm System is highly recommended for its ruggedness, precision and the quality of its craftsmanship.

## USING WIRED CONNECTORS

If using an Aquatica AD7000 Digital housing with electrical strobe connectors (supplied with either one or two Nikonos type connectors) these will be connected to a switch board circuit that will allow you to choose between full manual exposure or iTTL (an external converter or single housed flash is required). Optional Ikelite bulkheads connectors are also available.



When preparing the sync cord, be sure to lubricate the O-ring on the sync cord's connector with a light coat of the recommended O-ring lubricant for your strobe. Also advisable is to put a light coat of O-ring lubricant on the threads of this connector.

Nikon Digital camera have a flash circuitry that will not allow two flashes to be electrically connected directly to the camera, whether in a housing or on dry land, the wireless approach used by them prevents the triggering of the additional flashes, when two flashes or strobes are connected directly to the camera, iTTL will stop to function and a camera freeze is likely to happen.

On your housing you will find one (or two) bulkhead connectors, the main connector (right side) is wired through a switch board that will allow you to take full advantage of iTTL exposure, the secondary (left side if installed) connector is always in full manual configuration and cannot be used for iTTL operation. By default you housing is delivered with the switch board set to full manual, if the iTTL exposure is desired then it can be made in either of two methods:

- 1) By using a single flash from Nikon or other brand (that is iTTL compatible with your camera) in its dedicated underwater housing connected with a TTL cord to the main connector of your Aquatica housing.
- 2) By using an external iTTL converter connected to the main connector of your Aquatica housing, one or two underwater strobes with TTL cords which are then connected to this converter, (check strobe and converter manufacturer for compatibility).

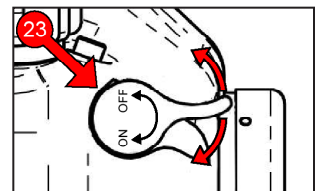
Set up instruction for iTTL operation: Using the tip of a pen push all the switches to the ON (up) position, this will activate the connections on your main bulkhead connector allowing TTL communication between the camera and the housed flash or iTTL converter.

**Set up instruction for manual operation:** All switches must be in the OFF (lower) position, in this case all iTTL connection are disabled and only the ground and sync are left active, this will allow two under water strobes or housed flashes to be connected directly via the main and secondary bulkhead.

## FOR OPTICAL CONNECTORS

The housing with optical connectors are supplied with one dual adapter for typical straight cord used by INON and various strobe manufacturers and two Sea & Sea angled type cords adapter, select the desired connection and install on the optical port base, tighten the set screw into place with the supplied hexagonal wrench.

In order to use Optical triggering, the built-in flash of the camera need to be in the up position, this can be done at time of installation or later by using the flash actuator lever (key # 23) and pressing it to release it.



If ambient light images need to be taken simply flip the flash actuator lever (key # 23) up to close the internal flash.

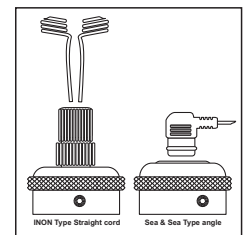
**Note:** it is advisable to turn the camera and external strobe off when travelling to your dive site in order to avoid useless drain of the camera and strobes the batteries.

Field testing shows that mixing brands of optically triggered strobes is likely to give unreliable result and should be avoided.

Remember not to install the hot shoe if shooting optically triggered strobes (HYB version) as this hot shoe disengages the internal built-in flash of the camera and prevent this later from working properly. Always do a few test exposures once you finished setting up the strobes

### Strobe exposure shooting tips:

Pressing the flash actuator lever down will only bring out the internal flash if no hot shoe is attached to the camera.



**When used with optical connectors:** this lever will release the internal flash when pressed or close it when lifted. Once the flash is up, pressing this lever can engage the exposure compensation so you can select the corrective value with the sub command knob(key # 2) or the flash sync mode, so you can select with the main command knob (key # 3) the desired mode (rear sync, slow sync etc.).

**When using electrical connectors:** This lever when pressed will engage both the exposure compensation so you can select value with the sub command knob(key # 2) and the flash mode so you can select the mode with the main command knob (key # 3) to select the desired mode.

Following are the basic techniques. For more information and advanced photography please study the Nikon® D7000 instruction manual.

NOTE \* Refer to the shooting tips section below for useful tips on custom settings of the Nikon® D7000 camera for underwater photography

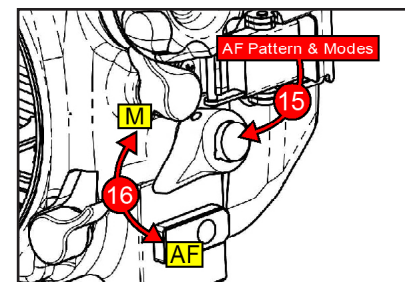
1. Rotate the exposure mode knob (key # 9) and select the desired exposure mode, the chosen mode will appear on both the Viewfinder (key# 29) and rear LCD window if using the INFO option. Exposure Mode options in sequence are: Programmed Auto (P), Shutter Priority Auto (S), Aperture Priority Auto (A) or Manual Exposure (M), U1 and U2 custom mode can also be programmed with the user personal settings.  
  
\* Full auto mode and scenes mode are not really useful in underwater photography, most popular choice are either full manual or aperture priority.
2. Control of Exposure Compensation (key# 39) is achieved by the lever to engage compensation function, select proper parameter by using either the sub or main command knobs.  
  
**Note:** When using strobes, it is recommended that the camera be used only in Single Frame Motor Drive or there is the possibility that the camera will fire before the flash or strobe can recycle.
3. Push the Metering Pattern button (key# 22) and select the metering pattern you wish to use: 3D Matrix, Center-Weighted or Spot, from the rear LCD panel.
4. Pull the Shutter Release Lever partially back. This will activate the camera's meter and autofocus system.
5. If using manual focus use the Focus Knob (key # 11) on the housing or on the flat port to focus.
6. If using the Manual mode adjust the Main Command Knob (key # 3) and/or sub-command (key # 2) to set the shutter speed and aperture.
7. Pull the Shutter Release Lever (key # 1) the rest of the way until the camera fires.

### Shooting tip:

The Nikon D7000 Digital camera is loaded with interesting options in the Custom Setting Menu that are very helpful to the underwater photographer, listed below are some of the most useful ones:

- 1) The lever on the rear right hand side of the housing is used normally to access the AE-L/AF-L button, it is possible to modify its original purpose to other functions, among interesting options it can be set up; to AF-ON to activate the focusing independently from the shutter release, to lock the flash exposure for users of optically triggered strobes), or simply lock the focus (AF-L) without locking the exposure. Go to the CSM menu and choose f5 and select one of the available options.
- 2) The housing mechanical linkages invert the rotations of the command and sub command controls, in normal situation, photographers will rotate the controls outwards with their finger to raise the shutter speed or stop down the lens, to reestablish this natural feel when using the housing controls, it is a simple procedure to invert them. Go to the CSM menu, select "f6, Customize Command Dials", select "Reverse Rotation", select "Yes" and confirm by pressing the OK button, you now have the knobs rotating in the same direction as the camera would out of the housing.
- 3) The Command and Sub Command dials can also be inverted, the front one becoming the shutter speed, the rear one being transformed in the aperture controls, this feature can be useful for manual strobe shooters, you can change the lens aperture with your thumb while taking picture continuously with your index, to do so, go to the CSM menu, select "f6, Customize Command Dials", select "Change Main/Sub", select ON and confirm with by pressing the OK button. You now have control of the aperture on the rear knob and shutter speed on the front one.
- 4) One very well hidden, but so very useful, custom function is the ability to modify the behavior of the camera push buttons, by default, when one chooses to change a setting related to a button, one has to keep pressing said button, rotate one of the two command dials and then let go of the button, using the f7 custom function will let you press on the button once and this one will stay engaged until you either press on it again, or gently tap the shutter release to turn it off. Changing setting on the camera itself is a simple procedure, not so when the camera is inserted into an underwater housing, then that can quickly becomes awkward especially with a housing loaded with strobes at the end of lengthy strobe arms. To engage this feature, go to CSM menu; select "f7 Release Button To Use Dial", press OK button to accept. This is one of the most useful features of the CSM repertoire.

**NOTE :** Select the proper focus mode (AF or M) with the focus mode selector (key # 16) and pressing button (key # 15) on the housing to access the pattern options (AF-A, AF-S, AF-C) with the main command dial (key # 3) or AF pattern (3D, AUTO, single point, 9, 21 or 39 points) mode by rotating the sub command knob (key # 2). For more detailed information concerning the operation of the different focus modes consult the Nikon® instruction book for the D7000. (Also see shooting tips 5 as it make using AF mode & Pattern button much easier to operate)



## USING THE HOUSING

Whenever changing ports or O-rings, it is highly advisable to perform a simple seal test without the camera inside. Strapping a weight to the housing and lowering the unit to a depth of 30 to 50 feet of water for at least 10 minutes will assure you that the seating of the new port or O-ring is proper. This test, though time consuming and often considered unnecessary, may save your camera equipment from irreparable water damage. Once this test is performed the housing is now ready for the dive.

**CAUTION:** Never jump into the water with the housing. It is best to have the system handed to you after you have made your entry, or have it lowered to you on a rope. Make certain that ropes of other equipment stay clear of the system.

When photographing, be sure to respect the environment. Avoid damaging marine life or manipulating sea creatures to obtain a pleasing photo. The housing is slightly negatively buoyant so that you can lay it down on the bottom, but avoid laying it on living coral or other delicate marine life.

## CHANGING THE MEMORY CARD

Always take care to thoroughly dry the housing before opening it to change memory card. Wipe the housing off with a dry towel. If possible it is suggested that the housing be blown dried by directing a low pressure air nozzle around the main o-ring before opening.

Rest the housing on its front with the port facing down, be careful to protect the port lens surface, release the two side latches simultaneously. Lift the rear part of the housing and place it in a secure location. This minimizes the possibility of any residual water falling into the housing and on to the camera when the housing is opened or damage to the sealing surface.

## TRANSPORTING THE AQUATICA HOUSING

Store the AQUATICA Digital housing in a sturdy, shock proof container. When travelling by air, remove the port. This allows for equalization of the air pressure inside the housing to the external air pressure. Failure to do so may cause serious damage to the ports by dislodging a sealing O-ring or window. Avoid travelling with the camera mounted inside the housing, while the housing is quite rugged, it is nonetheless not padded and any impact is likely to be transmitted to the cameras delicate components.

## CARE AND MAINTENANCE

### Of the housing:

After each and every salt water dive, your housing system should be soaked or rinsed in fresh water. The housing system should soak in fresh water for at least 30 minutes. During this soaking period reach into the water and operate all the controls several times.

Be sure to inspect the housing's main o-ring and clean it after every use. Refer to Maintenance: Of the O-rings. To ensure that the hand grips won't fuse on to the housing due to the exposure to salt water, it is also a good practice to occasionally remove the hand grips. Clean and lubricate the bolts with a small amount of WD-40 or add a touch of grease.

**WARNING:** Use WD-40 carefully, sparingly and only on metal to metal surfaces. WD-40 can damage the acrylic on the ports, the optical surfaces on lens as well as the O-rings.

### Of the Ports:

Care should be taken with the Dome Port and Macro Port to avoid scratches on the lens surface. The acrylic port is softer than glass so minor exterior scratches are often unavoidable. However, since the indices of refraction for acrylic and water are almost equal the scratches, if minors, should not seriously impair image quality. Internal scratches (air side) must be avoided as they do not fill in with water and will affect the quality of the image.

Clean the dome using only recommended products for cleaning the dome surface: For acrylic use a soft lint free cloth and plastic or acrylic approved polish. In the case of glass surface use approved glass lens cleaning solution with a soft lint free cloth. Dust on the interior surfaces of the port can be removed with a soft camel hair brush or a blower brush. Caution must be taken when using aerosol devices as not to spray the lens material with the liquid propellant as this may seriously affect the optical properties of the port. Use of pressurize air from a dive tank is not recommended, the force of the air stream may easily dislodge a port lens or O-ring. It is advisable that ports should be removed inspected and O-ring properly lubricated serviced before every dive.

### Of the Latches:

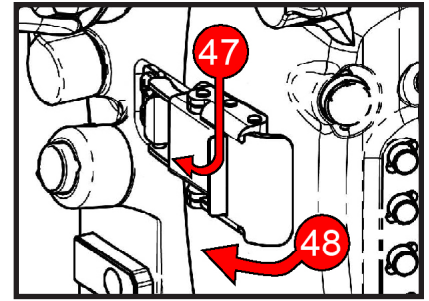
The two latches of the AQUATICA Digital are equipped with safety locking tabs, their locking action prevent accidental opening of the latches. To open push the safety locking tab (key # 47) and then lift the two latches (key # 46) simultaneously as per illustration. When closing and prior to the immersing the housing always ensure that the locking tab mechanism is engaged. Watch for the build-up of corrosion or salt residue around the latches. This will appear as a white material. Lubricate the latches with a small amount of WD-40 to remove the corrosion or salt residue build-up.

### Of the O-Rings:

The O-rings that need to be maintained on a regular basis are the main housing O-ring and the O-ring on the lens port. The main O-ring should be cleaned and inspected on a daily basis and the port O-ring should be cleaned every time a port or extension is changed or removed.

### Of the sacrificial anode:

An anode is attached to the bottom part of the housing and is there to prevent corrosion due to electrolysis, as time goes they will deteriorates and eventually need replacement, contact your dealer for replacement (parts # 19220).

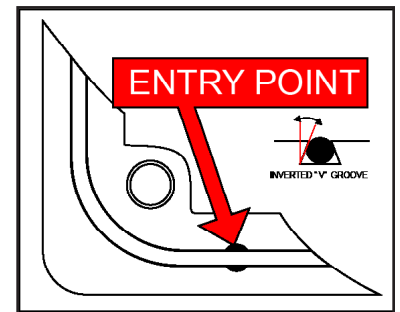


### TO SERVICE O-RINGS ON THE HOUSING MAIN O-RING, PORTS AND EXTENSION RINGS

1. Remove the O-ring. It is important never to use a sharp instrument when removing an O-ring as this may damage the O-ring groove or the O-ring itself. A dull pointed object or the edge of a credit card usually works well.

**Note:** The main O-ring is inserted in an inverted V groove to prevent it from popping out accidentally, to remove, use a dull pointed object and insert in the side of the small opening on the lower left hand side corner of the front of the housing. Do not use sharp objects or excessive force, this could result in damage to the sealing surface.

2. Once the O-ring is removed, it should be examined for damage. Check to make sure that the O-ring is free of nicks and cuts and that it retains its original round profile. O-rings that appear to be damaged should be discarded immediately and replaced with new O-rings.
3. Rinse the O-ring with fresh water and dry it with a clean lint free cloth.
4. Clean the O-ring groove (where the O-ring sits) with a cotton swab. Be sure to remove any lint the cotton swab may leave behind. Inspect the groove for damage.
5. Wipe the part of the housing that the O-ring seals against with a clean lint-free cloth.
6. Re-grease the O-ring with a thin layer of O-ring grease until it appears to be smooth and shiny. Do not over grease it. Use just enough grease so the O-ring will pull smoothly through your fingers. Excessive amounts of grease will only serve to attract dirt to the o-ring.
7. Make sure that the O-ring is properly (evenly) installed in the O-ring groove.
8. To reinstall the clean and lubricated O-ring, place the entire O-ring over the groove and start by pushing the O-ring in at each corner then, push the O-ring at each side and finally, work in the rest of the O-ring. Never start at one end and work your way around the O-ring. This places uneven tension on the O-ring which may cause the O-ring to stretch resulting in excess O-ring, which will have no place to go.



**Warning:** Use only recommended Aquatica O-ring lubricant (# 19213) on the Aquatica Housing (and use recommended O-ring lubricant from your strobe manufacture on their components O-rings), Petroleum based lubricant used by some manufacturers for their Silicone based O-rings can and will swell the material of our O-rings, this will render the O-ring very difficult to install and more likely will end up being damaged or pinched resulting in dire consequences

Internal O-rings on the housing controls are not user accessible, while these O-rings are not as susceptible to damage as they are not exposed, rinsing properly with fresh water to flush out salt crystals and sand residues will be the proper way to assure trouble free operation. It is recommended by Aquatica to have the housing serviced on a yearly basis. Aquatica has authorized service facility in both continental USA and Europe for this annual maintenance. Before sending any items, always contact us or the service center closest to you (these are listed on our website [www.aquatica.ca](http://www.aquatica.ca)).

The internal moisture alarm for your AQUATICA Digital housing (Product # 20023) is powered by an easily replaced CR 2032 battery. Please read the instruction sheet provided for your moisture alarm prior to installing the battery.



# Aquatica AD7000

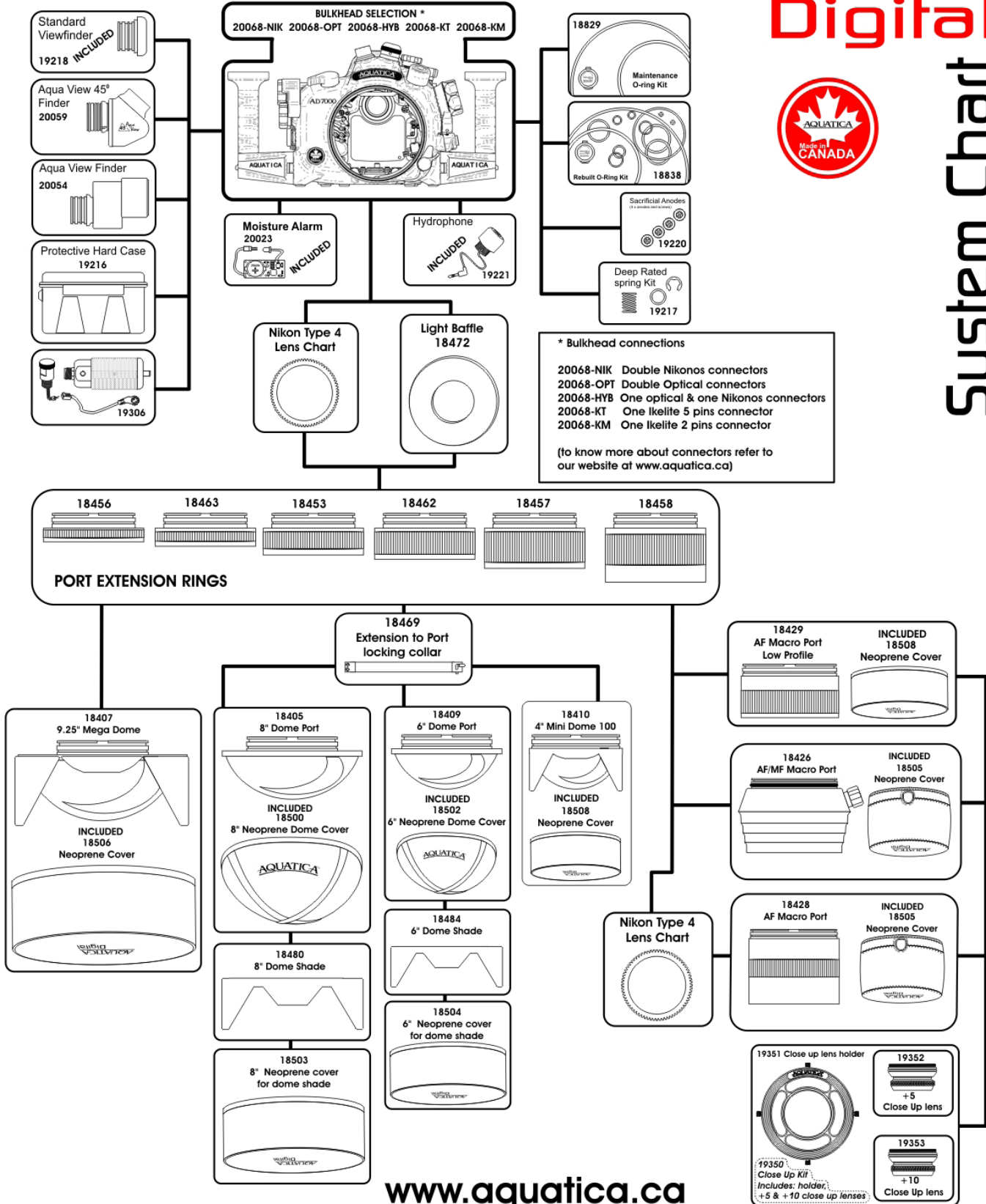
## For Nikon D7000

# AQUATICA™

## Digital



# System Chart



[www.aquatica.ca](http://www.aquatica.ca)

# Technical Lighting Control



## ARM SETS WITH BALL HEAD ADAPTER CHART

A Division of:

**AQUATICA**  
Digital

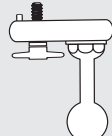
### BALL HEAD ADAPTER



17690  
Nikonos SB-105



17651  
1/4\"/>



17888  
INON



17692  
Ikelite DS160/DS161



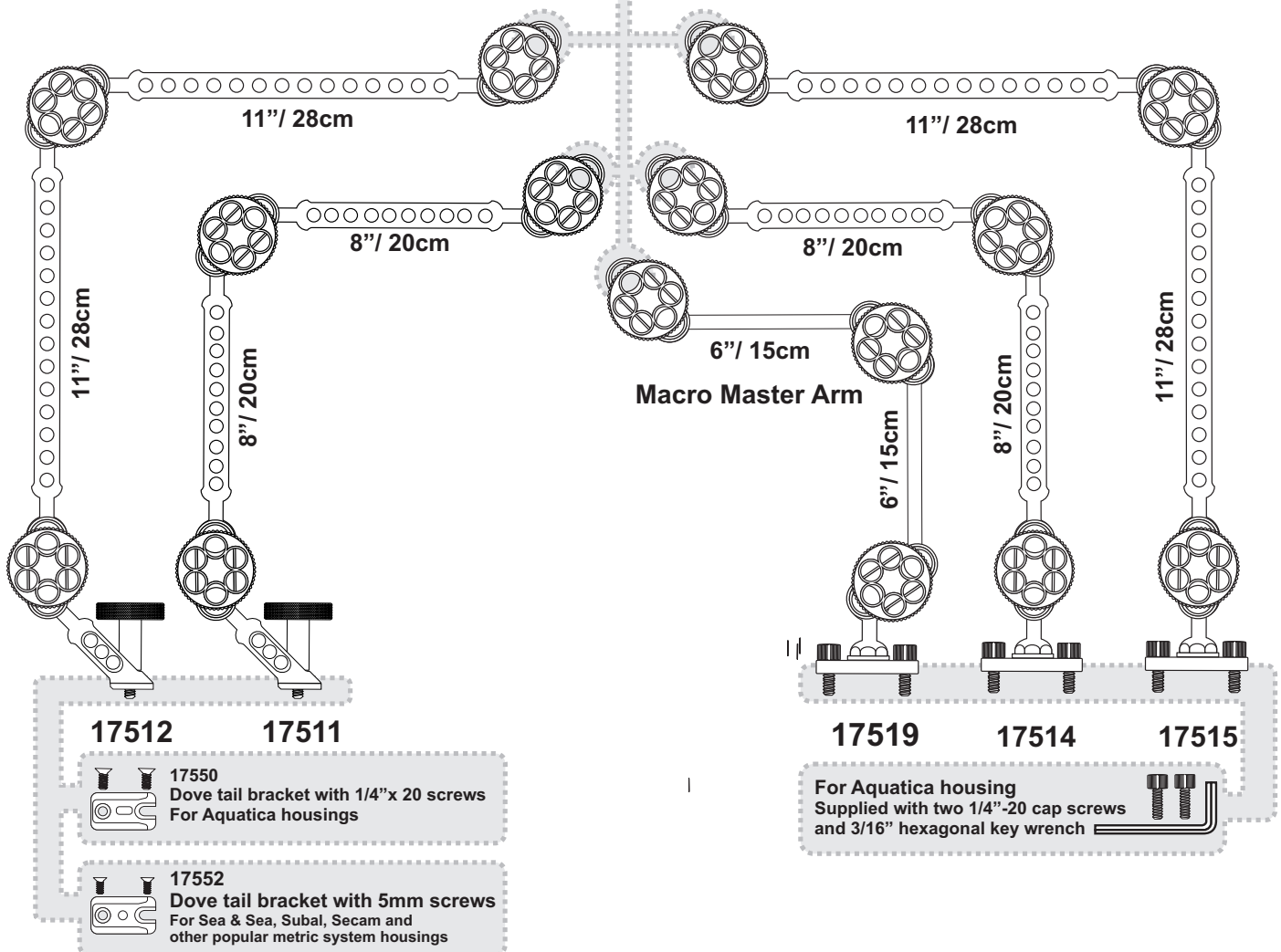
17691  
Sea & Sea



17655  
8mm threads



17688  
Ikelite DS 200



[www.aquatica.ca](http://www.aquatica.ca)

**No pins, no O-rings just tough, reliable performance from TLC**

# Technical Lighting Control

## INDIVIDUAL COMPONENTS CHART

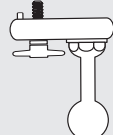
### BALL HEAD ADAPTER



17690  
Nikonos SB-105



17651  
1/4" x 20 threads



17888  
INON



17692  
Ikelite DS160/DS161



17691  
Sea & Sea



17655  
8mm threads



17688  
Ikelite DS 200

17752 Ikelite DS160/DS161 knob

17753 Ikelite DS200 knob

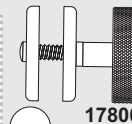
17754 Nikonos SB-105 knob

17757 8mm knob

17887 INON knob

A Division of:

**AQUATICA**  
Digital



17800

For Sea & Sea type strobes

17667

17673

17677

17889

17682

17671

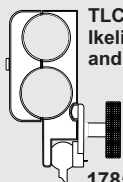
17800



17651  
1/4" x 20 threads

Buoyancy  
Compensating  
Float

17890



TLC holder for  
Ikelite TTL converter  
and Double cable

17858



17651  
1/4" x 20 threads

For Ikelite Grip

17555

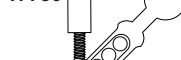
Four points  
mounting base

17554

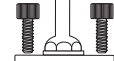


17651  
1/4" x 20 threads

17750



17657



17553

17659  
1/4" x 20 threaded hole

17655  
8mm threads

### Arm Clamp Accessories

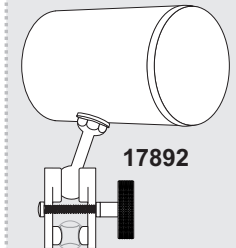
Arm clamp to 1" ball

17802

For Ikelite  
Slave sensor

17856

Buoyancy Compensating  
Float with arm clamp



17892

Two 1/4"-20 x 3/4" included

[www.aquatica.ca](http://www.aquatica.ca)

**No pins, no O-rings just tough, reliable performance from TLC**



# WARRANTY

## PLEASE READ CAREFULLY

### **One year Limited Warranty.**

Thank you for purchasing an AQUATICA manufactured product! Your AQUATICA housing is handcrafted by a small group of specially trained individuals - each of whom takes the most pride and satisfaction in offering you the best underwater camera housings in the world. All AQUATICA products are guaranteed against defects in material or workmanship for (1) one full year from the date of purchase for consumer use. these same products when used commercially will carry a 90-day warranty. No statutory warranty applies. Camera housed in AQUATICA housings are not covered under this warranty and ANY WATER DAMAGE SUSTAINED DUE TO INSTALLATION ERROR OR ANY OTHER REASON IS NOT THE RESPONSABILITY OF AQUATICA. Therefore the appropriate insurance should be maintained by the user.

Warranty does not apply to replaceable seals or damages to impacts or abrasive surfaces. Warranty applies only to products purchased from authorized AQUATICA dealers and does not extend beyond the original retail purchaser. Unauthorized modifications or repairs will automatically void this warranty. this applies to removal of serial numbers and AQUATICA identification labels.

To obtain service during or after the warranty period you must notify AQUATICA at 514-737-9481 and ship BY REGISTERED MAIL (INSURED) **ONLY**, enclosing your proof of purchase to:

AQUATICA  
3025 De Baene  
Montreal (Quebec)  
H4S 1K8

Mark clearly on your package "Canadian goods returned for repair"

Do not ship by any other means.  
Unauthorized packages will be refused.

YOUR SERIAL NUMBER \_\_\_\_\_